REMARKS

The Applicants and the undersigned thank Examiner Goff for his time and consideration given during a formal telephonic interview of May 24, 2005 and several follow up calls conducted on July 8, 2005 and July 18, 2005. The Applicants also appreciate Examiner Goff's careful review of this application.

Upon entry of this amendment, Claims 1-27, and 34-45 are pending in this application. Claims 28-33 have been cancelled. The independent claims are Claims 1, 23, 24, 25, 26, and 27. Consideration of the present application is respectfully requested in light of the above amendments to the application and in view of the following remarks.

Summary of Telephonic Interview of May 24, 2005 and Follow-up Calls of July 8, 2005, and July 18, 2005

The Applicants and the undersigned thank Examiner Goff again for his time and consideration given during the formal telephonic interview of May 24, 2005 and several follow up calls conducted on July 8, 2005 and July 18, 2005. During these communications, a proposed Rule 132 declaration and an amendment to the claims were discussed. The Applicants provided a proposed amendment to the claims in advance of the formal telephonic interview and a draft Rule 132 declaration was provided to the Examiner prior to the follow up calls.

The Applicant's representative explained that the prior art of record, especially U.S. Pat. No. 3,684,600 issued in the name of Smedberg (hereinafter, the "Smedberg" reference), does not provide any teaching of a combination of elements that includes a thermoplastic binder consisting entirely or essentially of a thermoplastic polyethylene resin having flow properties corresponding to an MI of about 2.2 to about 105 g/10 min. as measured in accordance with ASTM D 1238; and a viscosity between approximately 230,000 and 4,881,000 cps at about 270°F with a shear rate of about 10 sec^{-1} as measured in accordance with ASTM D 3835, as recited in each of the amended independent claims.

The Applicants' representative explained that these specific physical parameters for the thermoplastic binder of the inventive combination of elements recited in the amended independent claims are derived from the specific examples described in the

originally filed patent application. It was explained that MI range of 2.2 to 105 g/10 min for the thermoplastic polyethylene resin, as now claimed, is derived from the samples of the original application. Specifically, this MI range was derived from Examples 1-40 of the original application. This MI range of the thermoplastic polyethylene resin is also within the expressly disclosed ranges of 1 to 200g/ 10 min and 2 to 150 g/ 10 min found on page 57, lines 8-11 of the original application. The ASTM D1238 standard is also described on page 13, lines 22-25 of the original application.

It was also explained that the viscosity range of 230,000 and 4,881,000 cps at about 270°F with a shear rate of about 10 sec-1 for the thermoplastic polyethylene resin was derived from the samples of the original application. It was further explained that the Applicants amended the claims to include the viscosity range of the thermoplastic polyethylene resin in response to the Examiner's Final Office Action of March 7, 2005, page 14. On page 14 of the Examiner's March 7th Final Office Action, the Examiner correctly pointed out that the Applicants argued viscosity of the thermoplastic polyethylene resin their in their response of November 24, 2004 without *claiming* any viscosity.

To arrive at the viscosity range for the thermoplastic polyethylene resin as now claimed, the Applicants conducted actual tests that compared the viscosities of the thermoplastic polyethylene resin described in the original application to the viscosities of the hot melt adhesives described by the Smedberg reference. The ASTM D 3835 standard for calculating viscosity of the samples described by the original application was selected for the tests because it allowed for the determination of viscosities at shear rates that could be easily compared to viscosity range in the Smedberg reference.

The undersigned explained that in addition to the claimed viscosity range of the thermoplastic polyethylene resin not being taught by the Smedberg reference, the thermoplastic polyethylene resin with the claimed viscosity range yields unexpected results to one of ordinary skill in the art. To support this assertion of unexpected results and to explain how the Smedberg patent was compared to the samples of the invention, the Applicants agreed to submit a Rule 132 declaration that would be completed by one of the named inventors, Dr. Hugh Gardner.

Examiner Goff expressed concern that the claimed viscosity range may constitute new matter. However, the undersigned explained that case law would be referenced in the formal response that explains how claiming ranges derived from samples described in an original application is permitted under 35 U.S.C. § 112, first paragraph. The undersigned elaborated that physical ranges of materials can be claimed if samples that are clearly described have been disclosed in the original application.

The Examiner also asked if the shear stress was constant when the ranges for the MI and viscosity were calculated. The undersigned stated he would ask the inventor, Dr. Hugh Gardner, if he could explain shear stress in his Rule 132 Declaration. The Rule 132 Declaration, as filed and attached to this response, does discuss shear stress as requested by the Examiner.

The Rule 132 Declaration explains that ASTM D 1238 is carried out under constant shear stress as noted in paragraph 17 of the Declaration. Meanwhile, ASTM D 3835 is carried out under a variable shear stress as evidenced by the Tables for the three capillary rheometry results found in paragraphs 31, 32, and 33 of the Rule 132 Declaration.

The Applicants reiterated to Examiner Goff that the thermoplastic polyethylene resin that is part of the claimed combination of the elements in each of the independent claims yields unexpected results. As one of ordinary skill in the art, Dr. Hugh Gardner supports this assertion in the attached Rule 132 Declaration.

The Applicant and the undersigned request the Examiner to review this interview summary and to approve it by writing "Interview Record OK" along with his initials and the date next to this summary in the margin as discussed in MPEP § 713.04, p. 700-202.

Legal Precedent that Supports Claimed Ranges Derived from Samples That Are Described in Original Application are Permitted under 35 U.S.C. 112, First Paragraph

The Applicants respectfully submit that the addition of the viscosity range in each of the independent claims for the thermoplastic binder is not new matter under 35 U.S.C. § 112, first paragraph because the viscosity range is a physical property that was calculated from the samples that were adequately described in the original application.

Specifically, the claimed viscosity range was calculated based on the Melt Index (MI) that was described for each sample in the original application. The Applicants have known that their samples that comprised a thermoplastic binder consisting entirely or essentially of polyethylene based on the originally disclosed MIs were generally more viscous in nature compared to the hot melt adhesives used by the Smedberg reference.

The Examiner's assertion of Smedberg reference against the Applicants claimed invention necessitated a comparison of the physical properties, namely the viscosities, of the samples disclosed in the Applicants' original application against the viscosity range of the samples disclosed by the Smedberg reference.

The Applicants can claim ranges for physical properties of samples because those physical properties can be derived from parameters of the samples that were originally disclosed in the filing of the application. Further, the Applicants' original application has several passages that emphasize that flow properties of the thermoplastic resins were important or that they were an aspect of the invention.

For example, the original application emphasizes the flow properties of the thermoplastic resins as follows:

> "Preferred resins have flow properties that are conducive to flow or formability of softened or melted resin in contact with backings and encapsulation of stitches. Particularly preferred resins for use with common carpet materials such as polypropylene backings and nylon, polyester and polypropylene face yarns, soften at temperatures up to about 190° C. Such resins preferably have flow properties at such temperatures corresponding to MIs of about 1 to about 200g/10 min., more preferably from about 2 to about 150 g/10 min., and most preferably from about 5 to about 100g/10 min." See Original Application, page 56, line 35 through page 57, line 11.

The passage above from the original application explains how the flow properties of the resins correspond to the MI for a particular resin.

The Applicants submit that there is an abundance of legal precedent under 35 U.S.C. §112, first paragraph that permits a patent applicant to claim ranges for physical properties of samples even though the ranges for the physical properties may not have been originally disclosed. The Applicants direct the Examiner to Purdue Pharma L.P. v.

Faulding Inc., 230 F.3d 1320 (Fed. Cir. 2000). This case is but one example of legal precedent that permits a patent applicant to claim ranges for physical properties of samples even though the ranges for the physical properties may not have been originally disclosed because the ranges can be derived from parameters of the samples that were originally disclosed in the filing of the application. In this case, the patent owner, Purdue Pharma, relied upon two examples out of seven to allow the patent owner to claim a range that related to a property of the invention.

While the Court did reject the claiming of this range which was not set forth in the original text of the application, the Court rejected the range because the other samples did not support the range. The Court also explained that although the samples provide the data from which one can piece together the range as claimed, neither the text accompanying the examples, nor the data, nor anything else in the specification emphasizes the claimed range. See Purdue Pharma L.P., page 1326. The Court stated that it was reasonable that the lower court concluded that one of ordinary skill in the art would not be directed to the claimed range as an aspect of the invention.

Opposite to the Purdue Pharma L.P. case, all of the Applicants' examples support the claimed range. Further, the Applicants mention in the original text of the application that the physical flow properties of its thermoplastic polyethylene resins are an important aspect of the invention. See Original Application, page 56, line 35 through page 57, line 11 reproduced above. Instead of using actual viscosity parameters to define the flow properties, the Applicants defined the flow properties in terms of MIs. One of ordinary skill in the art can derive the actual viscosity of the samples of the original application based on the MIs as evidenced by the attached Rule 132 Declaration prepared by one of the inventors, Dr. Hugh Gardner.

Therefore, the Applicants respectfully submit that the claimed viscosity does not constitute new matter. Further, the Applicants also submit that claiming physical properties of samples based on other parameters of the samples that were originally disclosed in a patent application is permitted under 35 U.S.C. § 112, first paragraph and fully supported by legal precedent. Consideration and approval of the amended viscosity range in each of the independent claims are respectfully requested.

Claim Rejections under 35 U.S.C. §103(a)

The Examiner rejected Claims 1-5, 9-16, 18, 19, 21-27, and 34-45 under 35 U.S.C. §103 (a) as being obvious in view of the Smedberg reference in view Applicants' admitted prior art as described on pages 1-7 of the original application, and further in view of PCT Application Publication WO 98/38375 published in the name of Bieser et al (hereinafter, the "Bieser" reference).

The Examiner rejected Claims 1-5, 9-16, 18, 19, 21-27, and 34-45 under 35 U.S.C. §103 (a) as being unpatentable over Applicants' admitted prior art in view of the Smedberg reference, and further in view of the Bieser reference. The Examiner rejected Claims 6, 7, 16, 17, and 20 under 35 U.S.C. §103 (a) as being unpatentable over the Smedberg reference, the Applicants' admitted prior art, and the Bieser reference, and further in view of U.S. Pat. No. 4,836,871 issued in the name of Kato (hereinafter, the "Kato" reference).

The Applicants respectfully offer remarks to traverse these pending rejections. The Applicants will address each independent claim separately as the Applicants believe that each independent claim is separately patentable over the prior art of record.

Independent Claim 1

The rejection of Claim 1 is respectfully traversed. It is respectfully submitted that the Applicants' admitted prior art, Smedberg, Bieser, and Kato references fail to describe, teach, or suggest the combination of (1) adhering to a stitched side of a tufted primary backing a plurality of stitches of face yarn comprising a plurality of filaments by applying a thermoplastic binder comprising a softened or melted thermoplastic resin into contact with the stitched side by (2) (a) extruding the binder with melted thermoplastic resin into contact with the stitched side or (3) (b) heating the binder applied or present in solid form in contact with the stitched side to soften or melt the thermoplastic resin, and (4) cooling the thermoplastic binder in contact with the stitched side to solidify the resin, the improvement wherein the thermoplastic binder (5) consists entirely or essentially of a thermoplastic polyethylene resin having flow properties corresponding to an (6) MI of

about 2.2 to about 105 g/10 min. as measured in accordance with ASTM D 1238; and a (7) viscosity between approximately 230,000 and 4,881,000 cps at about 270°F with a shear rate of about 10 sec^{-1} as measured in accordance with ASTM D 3835, and comprising steps that comprise (8) applying to a plurality of the stitches, before the resin solidifies, a stitch bind composition having a viscosity effective for coating or penetrating the stitches to contact the filaments thereof (9) ranging from about 0.5 to 3000 cps and comprising (10) an aqueous liquid component that boils or vaporizes at a temperature such that it can be removed by heating below a temperature at which the tufted backing is damaged by heat and an organic polymer component that bonds filaments of the stitches on removal of the aqueous liquid component, wherein (10) the stitch bind composition is applied in an amount effective to provide about 0.2 to about 3 ounces of the organic polymer component or a residue thereof per square yard of the stitched side; and, (11) after applying the stitch bind composition but before the resin solidifies, heating the stitch bind composition to substantially remove the aqueous liquid component without damaging the tufted backing, as recited in amended Claim 1.

The Smedberg Reference

The Smedberg reference describes a hot melt adhesive carpet backsize process. The Smedberg reference uses a low viscosity hot melt adhesive formulation. Specifically, the Smedberg reference describes that its hot melt backsize adhesives have Brookfield viscosities of about 5,000 to 50,000 cps at application temperatures of 250-350°F (121-177°C) as mentioned in column 7, lines 28-31. These hot melt backsize adhesives are also described generally as ethylene/vinyl acetate copolymer-based formulations that also contain one or more of a wax filler and resin extender, and in which other types of resins, such as polyethylenes, ethylene/acrylate or ethylene/methacrylate polymers can be used instead of or in addition to the ethylene/vinyl acetate copolymer. See Smedberg reference, column 6, lines 66 through column 7, line 3.

While the Examiner relies upon the Smedberg reference to provide a teaching of a hot melt adhesive that consists entirely of a thermoplastic polyethylene resin, Smedberg expressly teaches away from this type of hot melt adhesive for economic reasons:

> "While such adhesives can consist solely of a polymeric binder resin, such as an ethylene/vinyl acetate copolymer, for economic reasons they generally include substantial quantities of other ingredients." Smedberg reference, column 6, lines 67-72.

Further, as noted above, Smedberg only contemplated hot melt backsize adhesives with Brookfield viscosities of about 5,000 to 50,000 cps at application temperatures of 250-350°F (121-177°C).

Opposite to the Smedberg reference, the Applicants claimed invention describes a combination of steps and elements that include a thermoplastic binder that consists entirely or essentially of a thermoplastic polyethylene resin having flow properties corresponding to an MI of about 2.2 to about 105 g/10 min. as measured in accordance with ASTM D 1238; and a viscosity between approximately 230,000 and 4,881,000 cps at about 270°F with a shear rate of about 10 sec^{-1} as measured in accordance with ASTM D 3835, as recited in amended independent Claim 1. The Applicants have submitted a Rule 132 Declaration to explain how this claimed viscosity range for the thermoplastic binder was calculated in order to compare the physical properties of the Applicants' examples that were disclosed in the original application to the binder of the Smedberg reference.

The Smedberg reference does not teach any thermoplastic binder that has the physical properties, such as the viscosity range, recited in amended independent Claim 1. In addition to the Smedberg reference not teaching any thermoplastic binder that falls within the viscosity range as claimed, the Applicants also submit that the thermoplastic binder with the viscosity range as claimed in combination with the other elements recited in independent Claim 1 also yields unexpected results.

The unexpected results include carpets with improved fuzz resistance and significantly improved tuft bind through the use of a very small amount of a stitch binder composition and the viscous thermoplastic resins of the claimed invention. The Rule 132 Declaration prepared by one of the inventors, Dr. Hugh Gardner, supports this assertion in paragraph 40. See also Tables 2, 3, 5, 6, 7, and 8 of the original application.

The Bieser Reference

The Examiner admits that the Smedberg reference does not provide any teaching of a tufted carpet comprising a primary backing and secondary backing made of woven polypropylene fabric and face yarns made of nylon, polyester, or polypropylene filaments. To make up for these deficiencies, the Examiner relies upon the Bieser reference.

The Bieser reference describes a method for manufacturing carpet. The Examiner asserts that the Bieser reference describes a tufted carpet comprising a primary backing material such as woven or non-woven polypropylene. The Examiner also states that the Bieser reference teaches a face yarn of the tufted carpet is made from various materials including nylon, polyester, and polypropylene.

The Bieser reference describes a special class of polyethylene resins as thermoplastic binder resins for carpet. One benefit of the special polyethylene resins in the Bieser reference is higher tuft bind compared to other conventional polyethylene resins. However, the Bieser reference teaches a different stitch binder amount than the Applicants' claimed invention. The Bieser reference teaches that a minimum of 4 oz/sq yd of stitch binder composition is needed to achieve fuzz resistance. The claimed invention recites a much smaller amount, such as 0.2 to 3.0 oz/sq yd, is all that is needed to achieve excellent fuzz resistance. That result is unexpected based on the Beiser reference, as is the fact that significantly improved tuft binds can also be achieved with similar low levels of a stitch binder composition.

The Bieser reference, similar to the Smedberg reference, does not provide any teaching of a combination of steps and elements that include a thermoplastic binder that consists entirely or essentially of a thermoplastic polyethylene resin having flow properties corresponding to an MI of about 2.2 to about 105 g/10 min. as measured in accordance with ASTM D 1238; and a viscosity between approximately 230,000 and 4,881,000 cps at about 270°F with a shear rate of about 10 sec^{-1} as measured in accordance with ASTM D 3835 in combination with an amount of stitch binder composition comprising of 0.2 to 3.0 oz/sq yd, as recited in amended independent Claim 1.

Therefore, the Examiner's proposed combination of the Smedberg and Bieser references does not teach all of the elements recited in amended independent Claim 1. The Applicants further submit that submit that the Examiner's proposed combination of the Smedberg reference and the Bieser reference is not feasible because the Smedberg reference teaches a fundamentally different process, using fundamentally different binders compared to those in the Bieser reference. Specifically, the homogeneously branched ethylene polymers of the Bieser reference are not substitutable for Smedberg's hot melt adhesive backcoats because the viscosities of the Bieser reference are too high. Further, the Bieser reference explains that its melt strengths are too low for application by extrusion as described in the Bieser reference at page 5, lines 19-28.

Even if the Examiner's proposed combination of the Smedberg and Bieser references was feasible, the combination would not be obvious in light of the unexpected results observed by the Applicants. As noted in the Applicants' attached Rule 132 Declaration of July 19, 2005, the unexpected results from the claimed combination of elements and steps include carpets with improved fuzz resistance and significantly improved tuft bind through the use of a very small amount of stitch binder composition and the viscous thermoplastic resin of the claimed invention. See Attached Rule 132 Declaration, paragraph 40, the original application on page 76, lines 5-8, and Tables 2, 3, 5, 6, 7, and 8 of the original application.

The Kato Reference

The Examiner admits that the combination of the Smedberg, the Applicants' admitted prior art, and Bieser references, do not provide any teaching of applying an aqueous pre-coat adhesive as a spray or foam. To make up for this deficiency, the Examiner relies upon the Kato reference.

The Kato reference describes backcoats for fabrics. The reference describes backcoats that include aqueous latex formulations that contain a crosslinkable resin, a plasticizer, and expandable polystyrene particles. The resin, plasticizer, and polystyrene particles form a solid foamed structure for bonding fabric piles.

The Applicants submit that the Kato reference, like the Smedberg reference, the Applicants' admitted prior art, and the Bieser reference, does not provide any teaching of

a combination of steps and elements that include a thermoplastic binder that consists entirely or essentially of a thermoplastic polyethylene resin having flow properties corresponding to an MI of about 2.2 to about 105 g/10 min. as measured in accordance with ASTM D 1238; and a viscosity between approximately 230,000 and 4,881,000 cps at about 270°F with a shear rate of about 10 sec^{-1} as measured in accordance with ASTM D 3835, as recited in amended independent Claim 1.

Further, the Kato reference does not provide any teaching of unexpected results from the claimed combination of elements and steps. The Kato reference does not provide any teaching of unexpected results that include carpets with improved fuzz resistance and significantly improved tuft bind through the use of a very small amount of stitch binder composition and the viscous thermoplastic resin of the claimed invention. See Attached Rule 132 Declaration, paragraph 40, the original application on page 76, lines 5-8, and Tables 2, 3, 5, 6, 7, and 8 of the original application.

The Applicant's Admitted Prior Art

The Examiner states that the Applicants Admitted Prior art discloses known techniques for manufacturing a carpet comprising a thermoplastic binder applied to the stitched side of a tufted primary backing. The Examiner refers the Applicants to page 1, lines 20-22 and on page 2, lines 25-29, and page 3, lines 1-26 of the original application. The Examiner also states that the Applicants' original application teaches primary and secondary backings that may comprise a woven polypropylene fabric. The Examiner refers the Applicants to Page 1, lines 35-39 of the original application. The Examiner continues a lengthy discussion in the Final Office Action of March 7, 2005 about other elements mentioned in the background section of the Applicants original application.

The Applicants submit that their background section of the application, similar to the Bieser and Smedberg references, does not provide any teaching or suggestion of a thermoplastic binder that consists entirely or essentially of a thermoplastic polyethylene resin having flow properties corresponding to an MI of about 2.2 to about 105 g/10 min. as measured in accordance with ASTM D 1238; and a viscosity between approximately 230,000 and 4,881,000 cps at about 270°F with a shear rate of about 10 sec^{-1} as measured

in accordance with ASTM D 3835, and a stitch binder composition comprising 0.2 to 3.0 oz/sq yd, as recited in amended independent Claim 1.,

Summary for Independent Claim 1

In light of the differences between amended independent Claim 1 and the Smedberg reference, Bieser reference, Kato reference, and the Applicants' admitted prior art, one of ordinary skill in the art recognizes that these prior art references and admission, alone or in combination, cannot anticipate or render obvious the recitations as set forth in amended independent Claim 1. Accordingly, reconsideration and withdrawal of the rejection of Claim 1 are respectfully requested.

Independent Claim 23

The rejection of Claim 23 is respectfully traversed. It is respectfully submitted that the Smedberg reference, Bieser reference, Kato reference, and the Applicants' admitted prior art, fail to describe, teach, or suggest the combination of steps that comprise (1) providing a tufted backing having a stitched side that has a plurality of stitches of face yarn comprising filaments, wherein filaments of a plurality of the stitches are bonded with an organic polymer; (2) contacting the stitched side of the tufted backing with a thermoplastic binder that consists entirely or essentially of a thermoplastic polyethylene-resin having (3) flow properties corresponding to an MI of about 2.2 to about 105 g/10 min. as measured in accordance with ASTM D 1238; (4) and a viscosity between approximately 230,000 and 4,881,000 cps at about 270°F with a shear rate of about 10 sec^{-1} as measured in accordance with ASTM D 3835 and (5) that softens or melts at a temperature below a temperature at which the tufted backing is damaged by heat or that, (6) when softened or melted, can contact the tufted backing without such damage; (7) heating the thermoplastic binder to soften or melt the resin without damaging the tufted backing; and (8) cooling the backing with softened or melted resin in contact with the stitched side to solidify the resin, as recited in amended Claim 23.

As noted above with respect to independent Claim 1, the Smedberg reference, Bieser reference, Kato reference, and the Applicants' admitted prior art do not provide any teaching of a combination of elements or steps that include a carpet binder system

comprising 1) tufted backing with a thermoplastic binder that consists entirely or essentially of a thermoplastic polyethylene-resin having flow properties corresponding to an MI of about 2.2 to about 105 g/10 min. as measured in accordance with ASTM D 1238; and a viscosity between approximately 230,000 and 4,881,000 cps at about 270°F with a shear rate of about 10 sec^{-1} as measured in accordance with ASTM D 3835, as recited in amended independent Claim 23.

In light of the differences between Claim 23 and the references mentioned above, one of ordinary skill in the art recognizes that the prior art references, alone or in combination, cannot anticipate or render obvious the recitations as set forth in amended independent Claim 23. Accordingly, reconsideration and withdrawal of this rejection are respectfully requested.

Independent Claim 24

The rejection of Claim 24 is respectfully traversed. It is respectfully submitted that the Smedberg reference, Bieser reference, Kato reference, and the Applicants' admitted prior art, fail to describe, teach, or suggest the combination of (1) providing a tufted backing comprising a backing and having a pile side and an opposite stitched side, (2) wherein the pile side has a plurality of tufts of face yarn that comprise a plurality of filaments and the stitched side has a plurality of stitches of the face yarn; (3) contacting the stitched side of the tufted backing with (4) a thermoplastic binder that comprises a thermoplastic resin that softens or melts at a temperature below a temperature at which the tufted backing is damaged by heat or that, when softened or melted, can contact the tufted backing without such damage, wherein the binder is applied into contact with the stitched side (5) by (a) extruding the binder with melted thermoplastic resin into contact with the stitched side or (b) heating the binder applied or present in solid form as a film, fiber, fabric, particulates or combination thereof in contact with the stitched side to soften or melt the thermoplastic resin, without damaging the tufted backing; and (6) cooling the thermoplastic binder with the softened or melted resin thereof in contact with at least the stitched side of the tufted backing to solidify the thermoplastic resin; the improvement wherein the thermoplastic binder consists entirely or essentially of (7) a thermoplastic polyethylene (8) having flow properties corresponding to an MI of about 2.2 to about

105 g/10 min. as measured in accordance with ASTM D 1238; and (9) a viscosity between approximately 230,000 and 4,881,000 cps at about 270°F with a shear rate of about 10 sec^{-1} as measured in accordance with ASTM D 3835, and comprising steps that comprise: (10) applying to a plurality of stitches, before the softened or melted resin solidifies, a stitch bind composition that has a viscosity effective for coating or penetrating the stitches to contact the filaments thereof ranging from about 0.5 to 3000 cps and (11) comprises an aqueous liquid component that boils or vaporizes at a temperature such that it can be removed by heating below a temperature at which the tufted backing is damaged by heat and an organic polymer component that bonds filaments of the stitches on removal of the aqueous liquid component, (12) wherein the stitch bind composition is applied in an amount effective to provide about 0.2 to about 3 ounces of the organic polymer component or a residue thereof per square yard of the stitched side; and (13) after applying the stitch bind composition but before the softened or melted resin solidifies, heating the stitch bind composition to remove the aqueous liquid component without damaging the tufted backing, as recited in amended independent Claim 24.

As noted above with respect to independent Claim 1, the Smedberg reference, Bieser reference, Kato reference, and the Applicants' admitted prior art do not provide any teaching of a combination of elements or steps that include a thermoplastic binder that consists entirely or essentially of a thermoplastic polyethylene resin having flow properties corresponding to an MI of about 2.2 to about 105 g/10 min. as measured in accordance with ASTM D 1238; and a viscosity between approximately 230,000 and 4,881,000 cps at about 270°F with a shear rate of about 10 sec^{-1} as measured in accordance with ASTM D 3835 in combination with a stitch binder composition present in the amount of 0.2 to 3.0 oz/sq yd, as recited in amended independent Claim 24.

In light of the differences between Claim 24 and the references mentioned above, one of ordinary skill in the art recognizes that the prior art references, alone or in combination, cannot anticipate or render obvious the recitations as set forth in amended independent Claim 24. Accordingly, reconsideration and withdrawal of this rejection are respectfully requested.

Independent Claim 25

The rejection of Claim 25 is respectfully traversed. It is respectfully submitted that the Smedberg reference, Bieser reference, Kato reference, and the Applicants' admitted prior art, fail to describe, teach, or suggest the combination of (1) adhering to a stitched side of a tufted backing a plurality of stitches of face yarn comprising a plurality of filaments by cooling in contact with the stitched side a (2) thermoplastic binder consisting entirely or essentially of a softened or melted thermoplastic polyethylene resin having (3) flow properties corresponding to an MI of about 2.2 to about 105 g/10 min. as measured in accordance with ASTM D 1238; and (4) a viscosity between approximately 230,000 and 4,881,000 cps at about 270°F with a shear rate of about 10 sec^{-1} as measured in accordance with ASTM D 3835 to solidify the resin, (5) wherein the thermoplastic binder with the thermoplastic resin thereof in softened or melted form is contacted with the stitched side by heating the thermoplastic binder applied or present in solid form as a nonwoven fabric of continuous or staple fibers consisting (6) entirely or essentially of the thermoplastic resin and having (7) a weight of about 1 to about 15 ounces per square yard in contact with the stitched side to soften or melt the thermoplastic resin; applying to a plurality of stitches, before the resin solidifies, (8) a stitch bind composition having a viscosity effective for coating or penetrating the stitches to contact the filaments thereof ranging from about 0.5 to 3000 cps and comprising (9) an aqueous liquid component that boils or vaporizes at a temperature (10) such that it can be removed by heating below a temperature at which the tufted backing is damaged by heat and an organic polymer component that bonds filaments of the stitches on removal of the aqueous liquid component, (11) wherein the stitch bind composition is applied in an amount effective to provide about 0.2 to about 3 ounces of the organic polymer component or a residue thereof per square yard of the stitched side; and (12) heating the stitch bind composition, after application thereof to the stitches and before the resin solidifies, to remove the aqueous liquid component of the stitch bind composition.

Similar to independent Claim 1, the Smedberg reference, Bieser reference, Kato reference, and the Applicants' admitted prior art do not provide any teaching of a combination of elements or steps for a carpet binder system that includes 1) a thermoplastic binder consisting entirely or essentially of a softened or melted

thermoplastic polyethylene resin having flow properties corresponding to an MI of about 2.2 to about 105 g/10 min. as measured in accordance with ASTM D 1238; and a viscosity between approximately 230,000 and 4,881,000 cps at about 270°F with a shear rate of about 10 sec^{-1} as measured in accordance with ASTM D 3835 to solidify the resin in combination with a stitch binder composition present in the amount of 0.2 to 3.0 oz/sq yd, as recited in amended independent Claim 25.

In light of the differences between Claim 25 and the references mentioned above, one of ordinary skill in the art recognizes that the prior art references, alone or in combination, cannot anticipate or render obvious the recitations as set forth in amended independent Claim 25. Accordingly, reconsideration and withdrawal of this rejection are respectfully requested.

Independent Claim 26

The rejection of Claim 26 is respectfully traversed. It is respectfully submitted that the Smedberg reference, Bieser reference, Kato reference, and the Applicants' admitted prior art, fail to describe, teach, or suggest the combination of (1) providing a tufted backing comprising a backing, face yarn comprising (2) a plurality of filaments, and (3) a thermoplastic binder in the form of a coating, fabric or fibers consisting (4) entirely or essentially of solid thermoplastic polyethylene resin that (5) softens or melts at a temperature below a temperature at which the backing and face yarn are damaged by heat and (6) has flow properties corresponding to an MI of about 2.2 to about 105 g/10 min. as measured in accordance with ASTM D 1238; (7) and a viscosity between approximately 230,000 and 4,881,000 cps at about 270°F with a shear rate of about 10 sec^{-1} as measured in accordance with ASTM D 3835, (8) wherein face yarn penetrates the backing and forms a pile surface comprising a plurality of tufts on one side of the backing and (9) a plurality of stitches on an opposite, stitched side of the backing, and (10) the thermoplastic binder is present on at least the stitched side of the backing; (11) applying to the stitched side of the tufted backing and in contact with a plurality of the stitches a stitch bind composition having a viscosity effective for coating or penetrating the stitches to contact the filaments thereof (12) ranging from about 0.5 to 3000 cps and comprising (13) water and an organic polymer component that bonds filaments of the stitches on

removal of the water, wherein the stitch bind composition is applied in an amount effective (14) to provide about 0.2 to about 3 ounces of the organic polymer component or a residue thereof per square yard of the stitched side; (15) heating the tufted backing in contact with the stitch bind composition to remove the water without damaging the tufted backing; (16) heating the binder to soften or melt the thermoplastic resin without damaging the tufted backing; and (17) cooling the binder with the softened or melted resin thereof in contact with the stitched side of the tufted backing to solidify the resin, as recited in amended independent Claim 26.

Similar to independent Claim 1, the Smedberg reference, Bieser reference, Kato reference, and the Applicants' admitted prior art do not provide any teaching of a combination of elements or steps that include a solid thermoplastic polyethylene resin that softens or melts at a temperature below a temperature at which the backing and face yarn are damaged by heat and has flow properties corresponding to an MI of about 2.2 to about 105 g/10 min. as measured in accordance with ASTM D 1238; and a viscosity between approximately 230,000 and 4,881,000 cps at about 270°F with a shear rate of about 10 sec^{-1} as measured in accordance with ASTM D 3835 in combination with a stitch binder composition present in the amount of 0.2 to 3.0 oz/sq yd, as recited in amended independent Claim 26.

In light of the differences between Claim 26 and the references mentioned above, one of ordinary skill in the art recognizes that the prior art references, alone or in combination, cannot anticipate or render obvious the recitations as set forth in amended independent Claim 26. Accordingly, reconsideration and withdrawal of this rejection are respectfully requested.

Independent Claim 27

The rejection of Claim 27 is respectfully traversed. It is respectfully submitted that the Smedberg reference, Bieser reference, Kato reference, and the Applicants' admitted prior art, fail to describe, teach, or suggest the combination of (1) providing a tufted primary backing having a pile side comprising face yarn tufts and an opposite side having a plurality of stitches of face yarn; (2) applying to a plurality of the stitches a stitch bind composition having a viscosity effective for coating or penetrating the stitches

to contact the filaments thereof (3) ranging from about 0.5 to 3000 cps and comprising (4) an aqueous liquid component that boils or vaporizes at a temperature (5) such that it can be removed by heating below a temperature at which the tufted backing is damaged by heat and an organic polymer component that bonds filaments of the stitches on removal of the aqueous liquid component, (5) wherein the stitch bind composition is applied in an amount effective to provide about 0.2 to about 3 ounces of the organic polymer component or a residue thereof per square yard of the stitched side; (6) contacting the tufted primary backing, (7) an additional backing and (8) a thermoplastic binder consisting entirely or essentially of a (9) thermoplastic polyethylene resin (10) having flow properties corresponding to an MI of about 2.2 to about 105 g/10 min. as measured in accordance with ASTM D 1238; and (11) a viscosity between approximately 230,000 and 4,881,000 cps at about 270°F with a shear rate of about 10 sec^{-1} as measured in accordance with ASTM D 3835 and (12) that softens or melts at a temperature below a temperature at which the tufted primary backing and the additional backing are damaged by heat or that, when softened or melted, can contact the tufted primary backing and the additional backing without such damage, (13) to form an intermediate structure having the thermoplastic binder disposed between the stitched side of the tufted primary backing and the additional backing; (14) heating the tufted primary backing or the intermediate structure after application of the stitch bind composition to remove the aqueous liquid component without damaging the tufted primary or additional backing; (15) heating the thermoplastic binder to soften or melt the thermoplastic resin without damaging the tufted backing or the additional backing; and (16) cooling the intermediate structure with the thermoplastic resin in softened or melted form to solidify the resin, as recited in amended independent Claim 27.

As noted above with respect to independent Claim 1, the Smedberg reference, Bieser reference, Kato reference, and the Applicants' admitted prior art do not provide any teaching of a combination of elements or steps that include a thermoplastic binder that consists entirely or essentially of a thermoplastic polyethylene–resin having flow properties corresponding to an MI of about 2.2 to about 105 g/10 min. as measured in accordance with ASTM D 1238; and a viscosity between approximately 230,000 and 4,881,000 cps at about 270°F with a shear rate of about 10 sec^{-1} as measured in

accordance with ASTM D 3835 in combination with a stitch binder composition present in the amount of 0.2 to 3.0 oz/sq yd, as recited in amended independent Claim 27.

In light of the differences between Claim 27 and the references mentioned above, one of ordinary skill in the art recognizes that the prior art references, alone or in combination, cannot anticipate or render obvious the recitations as set forth in amended independent Claim 27. Accordingly, reconsideration and withdrawal of this rejection are respectfully requested.

Dependent Claims 2-22, and 34-45

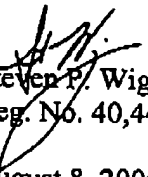
The Applicants respectfully submit that the above-identified dependent claims are allowable because the independent claims from which they depend are patentable over the cited references. Accordingly, reconsideration and withdrawal of the rejections of the dependent Claims 2-22, and 34-45 are respectfully requested.

CONCLUSION

The foregoing is submitted as a full and complete response to the Final Office Action mailed on March 7, 2005. The Applicants and the undersigned thank Examiner Goff for the consideration of these remarks. The Applicants have submitted remarks to traverse the rejections of Claims 1-27 and 34-45. The Applicants respectfully submit that the present application is in condition for allowance. Such Action is hereby courteously solicited.

If any issues remain that may be resolved by telephone, the Examiner is requested to call the undersigned at 404.572.2884.

Respectfully submitted,



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